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Two new species of *Septobasidium* (*Septobasidiaceae*) from Gaoligong Mountains in China

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Abstract —Two new species, *Septobasidium lyoniae* on *Lyonia ovalifolia* associated with *Pseudaulacaspis* sp. and *Septobasidium pittospori* on *Pittosporum kerrii* associated with *Chionaspis* sp., are described. They were collected from Gaoligong Mountains in Yunnan Province, China.

Key words —*Pucciniomycetes*, *Septobasidiales*, taxonomy

Previously, four new species of *Septobasidium* were found in Gaoligong Mountains of Yunnan Province (Lu & Guo 2009b, 2010a). From the same area an additional two new species are described as follows:

Septobasidium lyoniae C.X. Lu & L. Guo, **sp. nov.** Figs. 1–7

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Basidiomata resupinata, 2–11 cm longa, 1–5 cm lata, cinnamomeo-brunnea, fumoso-brunnea vel brunnea, margine determinata, superficie laevia, in sectione 510–1200 µm crassa. Subiculum 25–50 µm crassum, brunneum, e subiculo stratum hypharum 275–580 µm altum vel columnam 200–250 altam, 110–130 µm latam formans. Ab strato hymenii hyphae saepe repullulantes tum stratum hypharum et hymenium secundum formantes. Stratum hymenii 100–220 µm altum, basidiis bistratosis praeditum. Hyphae hymenii 3.5–5 µm crassae. Basidia cylindrica, recta vel leviter curvata, 4-cellularia, 45–57 × 8.5–10.5 µm, hyalina or brunneola. Sterigmata conica, 5–6 µm longa. Sine probasidio. Basidiosporae non visae. Haustoria ex hyphis irregulariter spiralibus constantia.

Type: On *Lyonia ovalifolia* (Wall.) Drude (*Ericaceae*): China, Yunnan Province, Gaoligong Mountains, Longling, alt. 1100 m, 6.IX.2008, S.H. He, Y.F. Zhu & L. Guo 2382, HMAS 250384 (**holotype**), associated with *Pseudaulacaspis* sp. (*Diaspididae*).

Basidiomata on branches, resupinate, perennial, 2–11 cm long, 1–5 cm wide, cinnamon-brown, smoke-brown or brown; margin determinate; surface smooth. In section 510–1200 µm thick. Subiculum 25–50 µm thick, brown.

From the subiculum forming the hyphal layer 275–580 μm thick, or pillars 200–250 μm high and 110–130 μm wide. From hymenial layer the fungal hyphae often renew growth to form the second hyphal layer and hymenium. The scale insects present between the hymenium and the hyphal layer. Hymenial layer 100–220 μm thick, usually with two continual basidial layers and upright hymenial hyphae 3.5–5 μm thick. Basidia arising directly from the hyphae without a probasidial cell, cylindrical, straight or slightly curved, 4-celled, 45–57 × 8.5–10.5 μm, hyaline or brownish. Sterigmata coniform, 5–6 μm long. Basidiospores not seen. Haustoria consisting of irregularly coiled hyphae.

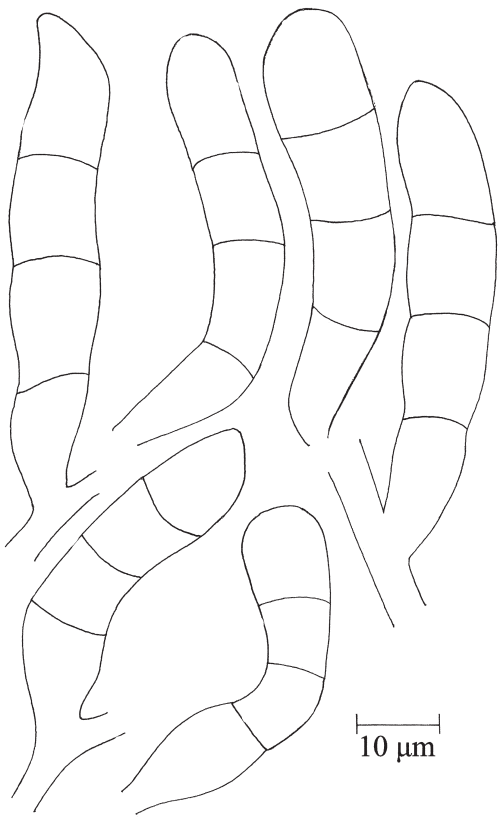
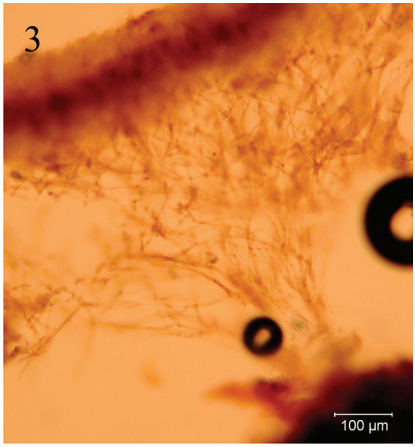
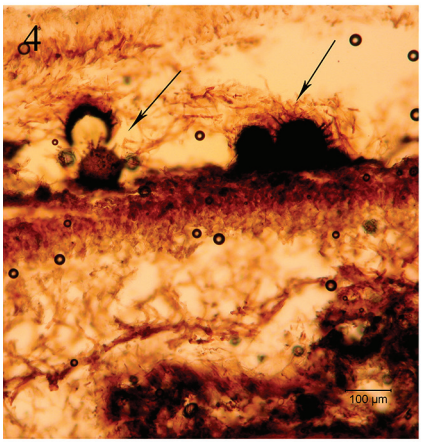


Fig. 1. Basidia of *Septobasidium lyoniae* (HMAS 250384, holotype).

Figs. 2–7. *Septobasidium lyoniae* (HMAS 250384, holotype). 2. Basidiomata on branch. 3–4. Sections of basidiomata (scale insects are arrowed). 5–6. Basidia (arrows). 7. Haustoria.

2
0 1CM 2 3 4 5


3
100 µm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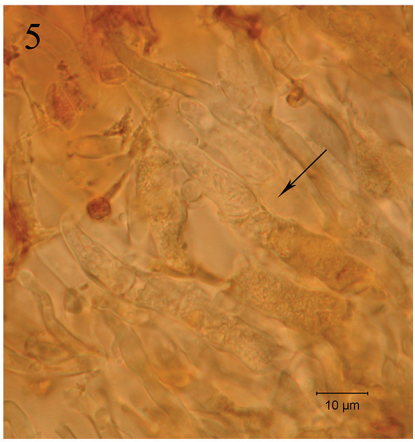
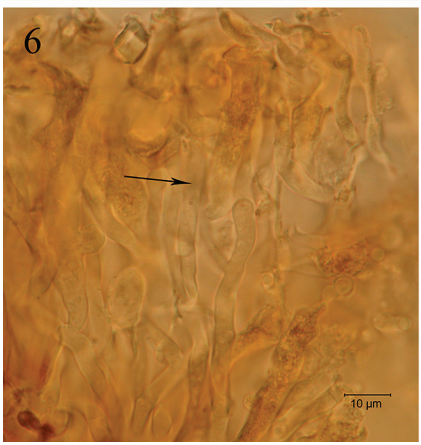
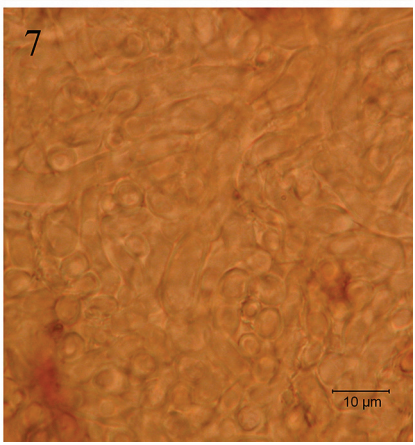

5
10 µm


6
10 µm


7
10 µm

Remarks: Morphologically, *Septobasidium lyoniae* is similar to *S. cirratum* Burt, from which it differs in producing 2-stratose hymenia (single layer in *S. cirratum*), and having thicker and non-coiled hymenial hyphae (3.5–5 μm vs 1.5–2 μm).

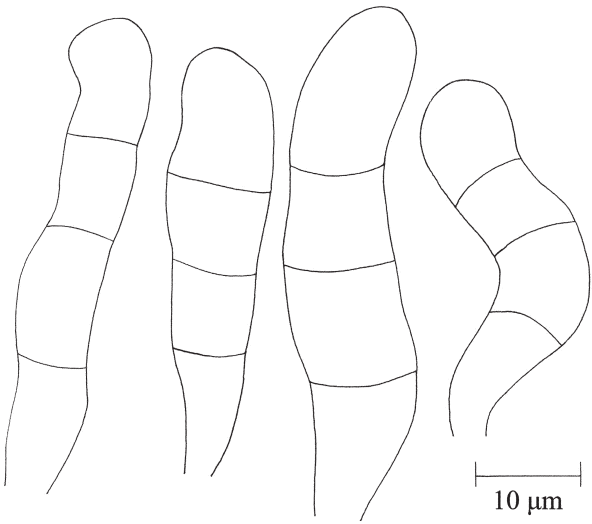


Fig. 8. Basidia of *Septobasidium pittospori* (HMAS 240137, holotype).

Septobasidium pittospori C.X. Lu & L. Guo, **sp. nov.** Figs. 8–14

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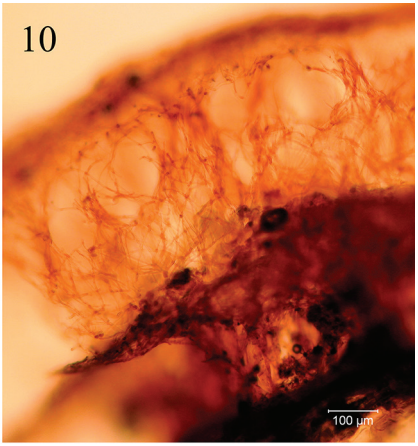
Basidiomata resupinata, 13–20 cm longa, 2–5 cm lata, cinnamomeo-brunnea, margine determinata, superficie laevia, in vetustate caduca, in sectione 490–920 μm crassa. Subiculum brunneum, 30–55 μm crassum. Columnae brunneae, 190–290 μm altae, 25–190 μm crassae. Stratum hypharum 340–580 μm altum. Hymenium 50–90 μm crassum. Basidia cyclindrica, recta vel leviter curvata, 4-cellularia, 35–50 × 7–11 μm, hyalina or flavido-brunnea. Sine probasidio. Basidiosporae non visae. Haustoria ex hyphis et cellulis globularibus constantia.

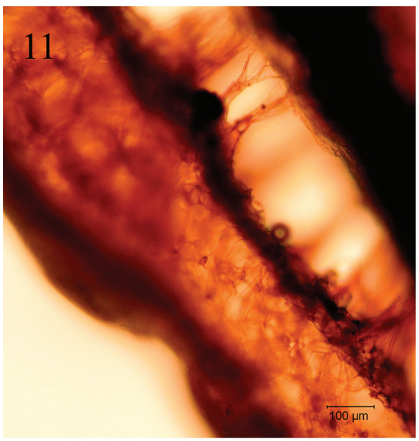
Type: On *Pittosporum kerrii* Craib (*Pittosporaceae*): China, Yunnan Province, Gaoligong Mountains, Baoshan, Baihualin, alt. 1400 m, 3.IX.2008, S.H. He, Y.F. Zhu & L. Guo 2305, HMAS 240137 (**holotype**), associated with *Chionaspis* sp. (*Diaspididae*).

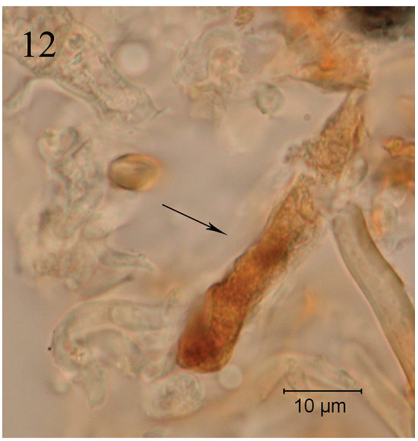
Basidiomata on branches, resupinate, 13–20 cm long, 2–5 cm wide, cinnamon-brown; margin determinate; surface smooth, peeling off partly in old stage. In section 490–920 μm thick. Subiculum brown, 30–55 μm thick. Pillars brown, 190–290 μm high, 25–190 μm wide. Hyphal layer 340–580 μm high. Hymenial layer 50–90 μm thick, having loosely and irregularly upright hymenial hyphae.

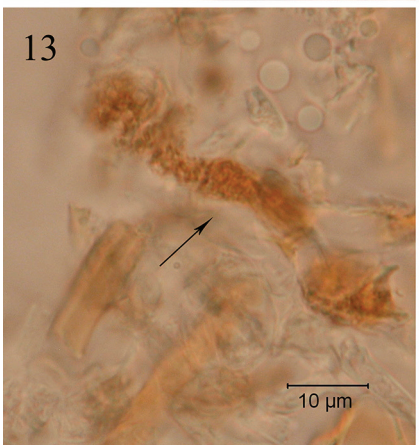
Figs. 9–14. *Septobasidium pittospori* (HMAS 240137, holotype). 9. Basidiomata on branches. 10–11. Sections of basidiomata. 12–13. Basidia (arrows). 14. Haustoria.

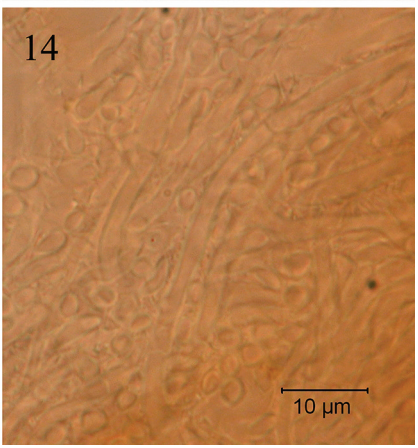
9
0 1CM 2 3 4 5


10
100 µm


11
100 µm


12
10 µm


13
10 µm


14
10 µm

Basidia arising directly from the hyphae without a probasidial cell, cylindrical, straight or slightly curved, 4-celled, 35–50 × 7–11 μm, hyaline or yellowish brown. Basidiospores not seen. Haustoria consisting of hyaline hyphae and globose cells.

Remarks: Morphologically, *Septobasidium pittospori* is similar to *S. lichenicola* (Berk. & Broome) Petch, from which it differs in having distinct pillars; *S. lichenicola* has inconspicuous pillars.

To date, 31 species of *Septobasidium* have been reported in China (Sawada 1933, Couch 1938, Teng 1963, Tai 1979, Kirschner & Chen 2007, Lu & Guo 2009a,b,c, 2010a,b,c, Lu et al. 2010, Chen & Guo 2011), including the two new species reported in this paper.

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